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Declaration under Rule 4.17:
— *of inventorship (Rule 4.17(iv)) for US only*

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
16 September 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: KINASE SEQUENCES

(57) Abstract: The present invention relates to nucleotide sequences that encode and may be used to express amino acid sequences that are useful in the identification and development of compounds with activity as pharmaceuticals, in particular of compounds for the prevention and treatment of metabolic diseases such as diabetes and obesity. The invention also relates to the amino acid sequences - such as proteins and polypeptides - that are encoded by, and that may be obtained by suitable expression of, the nucleotide sequences of the invention, particularly the amino acid sequences of J1K, PSK, TAO1 and Q9P2I6. The invention also relates to various uses and modulators of, and methods incorporating, the nucleotide and amino acid sequences of the invention.

WO 2004/056982 A3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/14674

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N9/12 C12N5/10 G01N33/53 C07K16/40

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, BIOSIS, EMBL, GENSEQ, SEQUENCE SEARCH, PAJ, WPI Data, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE EMBL 'Online! 16 September 1995 (1995-09-16) WILSON R. ET AL.: "Caenorhabditis elegans putative serine/threonine protein kinase (Sulu) mRNA, complete cds." Database accession no. U32275 XP002285648 the whole document ---	1-10,17
X	DATABASE UNIPROT 'Online! 1 November 1995 (1995-11-01) COPE M.J.T.V., KENDRICK-JONES A.: "Serine/threonine-protein kinase SULU (EC 2.7.1.37)." Database accession no. P46549 XP002285649 the whole document --- -/--	1-10,17

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
25 June 2004	12/07/2004

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Morawetz, R

Form PCT/ISA/210 (second sheet) (January 2004)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BERMAN K S ET AL: "kin-18, a C. elegans protein kinase involved in feeding" GENE: AN INTERNATIONAL JOURNAL ON GENES AND GENOMES, ELSEVIER SCIENCE PUBLISHERS, BARKING, GB, vol. 279, no. 2, 28 November 2001 (2001-11-28), pages 137-147, XP004329111 ISSN: 0378-1119 cited in the application the whole document	1-10,17
X	WO 99/53036 A (SUGEN INC ;WHYTE DAVID (US); PLOWMAN GREGORY (US); MARTINEZ RICARD) 21 October 1999 (1999-10-21) the whole document	1-10,17
X	DATABASE EMBL 'Online! 19 January 2000 (2000-01-19) CARTER T.G. ET AL.: "Homo sapiens serine/threonine kinase (KDS) mRNA, complete cds." Database accession no. AF181985 XP002285650 the whole document	1-10,17
X	TASSI E ET AL: "Human JIK, a novel member of the STE20 kinase family that inhibits JNK and is negatively regulated by epidermal growth factor" JOURNAL OF BIOLOGICAL CHEMISTRY, AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, BALTIMORE, MD, US, vol. 274, no. 47, 19 November 1999 (1999-11-19), pages 33287-33295, XP002965003 ISSN: 0021-9258 cited in the application the whole document	1-10,17
X	ZHANG WEIPING ET AL: "Cloning of DPK, a novel dendritic cell-derived protein kinase activating the ERK1/ERK2 and JNK/SAPK pathways" BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, vol. 274, no. 3, 11 August 2000 (2000-08-11), pages 872-879, XP002285645 ISSN: 0006-291X cited in the application the whole document	1-10,17

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MOORE TANYA M ET AL: "PSK, a novel STE20-like kinase derived from prostatic carcinoma that activates the c-Jun N-terminal kinase mitogen-activated protein kinase pathway and regulates actin cytoskeletal organization" JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 275, no. 6, 11 February 2000 (2000-02-11), pages 4311-4322, XP002285646 ISSN: 0021-9258 cited in the application the whole document	1-10,17
X	DATABASE GENESEQ 'Online! 8 February 2001 (2001-02-08) SHIMKETS RA, LEACH M: "Human ORFX ORF1427 polypeptide sequence SEQ ID NO:2854" Database accession no. AAB41663 XP002285651 the whole document	1-10,17
X	DATABASE EMBL 'Online! 9 February 1999 (1999-02-09) NAGASE T. ET AL.,: "Homo sapiens mRNA for KIAA0881 protein, partial cds." Database accession no. AB020688 XP002285652 cited in the application the whole document	1-10,17
X	DATABASE EMBL 'Online! 15 October 2001 (2001-10-15) JENKINS SG, ET AL., : "Homo sapiens serine/threonine kinase TAO1 mRNA, complete cds." Database accession no. AY049015 XP002285653 the whole document	1-10,17
X	DATABASE EMBL 'Online! 14 March 2000 (2000-03-14) NAGASE T. ET AL., : " Homo sapiens mRNA for KIAA1361 protein, partial cds." Database accession no. AB037782 XP002285654 cited in the application abstract	1-10,17
A	US 6 034 228 A (MOORE WILLIAM CRAIG ET AL) 7 March 2000 (2000-03-07) the whole document	

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	HIROSUMI JIRO ET AL: "A central role for JNK in obesity and insulin resistance." NATURE (LONDON), vol. 420, no. 6913, 21 November 2002 (2002-11-21), pages 333-336, XP002285647 ISSN: 0028-0836 (ISSN print) cited in the application the whole document	
A	OGG S ET AL: "THE FORK HEAD TRANSCRIPTION FACTOR DAF-16 TRANSDUCES INSULIN-LIKE METABOLIC AND LONGEVITY SIGNALS IN C. ELEGANS" NATURE, MACMILLAN JOURNALS LTD. LONDON, GB, vol. 389, 30 October 1997 (1997-10-30), pages 994-999, XP002926981 ISSN: 0028-0836 cited in the application the whole document	
A	WO 00/01846 A (MORTIER KATHERINE ;DEVGEN NV (BE); BOGAERT THIERRY (BE); PLAETINCK) 13 January 2000 (2000-01-13) cited in the application	
P,X	WO 03/051905 A (EXELIXIS INC) 26 June 2003 (2003-06-26) see human TAOJIK DNA #s 1, 4, 8 the whole document	1-10,17

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 03/14674

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: 11-16
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 11-16

Present claims 11-16 relate to a compound defined by reference to a desirable characteristic or property, namely to be a modulator of a protein or polypeptide according to claim 8.
The claims cover all compounds having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for none of such compounds. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the compounds by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-17 (all partially)

   Nucleic acid encoding the amino acid sequence of SEQ ID NO: 2, and subject-matter related thereto.

2. Claims: 1-17 (all partially)

   Nucleic acid encoding the amino acid sequence of SEQ ID NO: 4, and subject-matter related thereto.

3. Claims: 1-17 (all partially)

   Nucleic acid encoding the amino acid sequence of SEQ ID NO: 6, and subject-matter related thereto.

4. Claims: 1-17 (all partially)

   Nucleic acid encoding the amino acid sequence of SEQ ID NO: 8, and subject-matter related thereto.

5. Claims: 1-17 (all partially)

   Nucleic acid encoding the amino acid sequence of SEQ ID NO: 10, and subject-matter related thereto.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/14674

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